



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,929	11/26/2003	Joseph P. Rynd	25226A	1182

22889 7590 01/25/2006

OWENS CORNING
2790 COLUMBUS ROAD
GRANVILLE, OH 43023

EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT	PAPER NUMBER
----------	--------------

1732

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,929

Applicant(s)

RYND ET AL.

Examiner

Jeff Wollschlager

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

The amendment to original claims 1, 3, 6, and 9 filed on October 25, 2005, has been accepted. New claims 21 -24 filed on October 25, 2005 have been accepted. Claims 17-20 have been cancelled.

Response to Arguments

Applicant's arguments with respect to claims 1-16 and 21-24 have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 14, and 16-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Hayashi et al. (U.S. Patent 6,696,504; issued February 24, 2004; filed December 23, 1999).

Claims 1-14, and 16-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (U.S. Patent 6,759,446; issued July 6, 2004; filed May 2, 2002).

Regarding claim 1, Hayashi et al. teach a method of manufacturing a rigid foam by incorporating nano-particles into a polymer melt, incorporating a blowing agent into the melt, extruding the polymer melt, and cooling the foamed product formed. Specifically, Hayashi et al. teach incorporating nano-particles of calcium carbonate (col. 13 lines 23-28) to produce a foam with an average cell size being greater than approximately 60 μm (col. 13 line 30). Additionally, regarding claim 1, Lee et al. teach a method of manufacturing a rigid foam meeting the limitations of the claim. Specifically, Lee et al. teach incorporating nano-particles of nano-clays (col. 1 lines 50-51; col. 2 lines 42-45) to produce a foam with an average cell size being greater than approximately 60 μm (col. 12 lines 9-11).

Both Hayashi et al. and Lee et al. teach a method of manufacturing a rigid foam according to claim 1, wherein the major polymer used is polystyrene and minor polymers are also used, meeting the limitations of claims 2-4 (Hayashi et al. col. 13 lines 10-15 and Lee et al. col. 2, lines 51-55).

Regarding claims 5-6, both Hayashi et al. and Lee et al. teach a method of manufacturing a foam according to claim 2, wherein the blowing agents include at least one composition selected from the groups listed in the claims (Hayashi et al. col. 1 lines 19-31; Lee et al. col. 3 lines 25-29). Additionally, both Hayashi et al. and Lee et al. teach a method according to claim 2, further comprising incorporating an additive into

the polymer melt before forming the foam, meeting the limitations of claims 7, 8, and 16 (Hayashi et al. col. 13 lines 23-35 and lines 43-50 and Lee et al. col. 2 lines 8-22.).

Regarding claims 9-13, Lee et al. teach a method of manufacturing a rigid foam according to the method of claim 2, wherein the nano-particles are nano-Montmorillonite intercalated with polystyrene nano-clays used in the range of 0.5 – 5%, based on polymer weight (col. 1 lines 50 – 66 and col. 2 lines 43-50).

Additionally, the properties of the foams produced by Hayashi et al. and Lee et al. meet the limitations of claim 14 (Hayashi et al. col. 8 line 50, col. 25 –26 Table B1 and Lee et al. col. 12 lines 9-12).

Regarding claims 21-23, Hayashi et al. teach a method of manufacturing a rigid foam by incorporating acicular nano-particles into a polymer melt, incorporating a blowing agent into the melt, extruding the polymer melt, and cooling the foamed product formed. Specifically, Hayashi et al. teach incorporating nano-particles of calcium carbonate (col. 13 lines 23-28) to produce a foam, meeting the limitations of claim 21, further comprising the step of incorporating a nucleating agent, for example talc powder, (col. 13 lines 23-28), meeting the limitations of claim 22, to form a foam with a cell orientation of at least 1.2 (col. 25-26 Table B1), meeting the limitations of claim 23. Calcium carbonate is an acicular material [paragraph 0011 in the disclosure of the instant application.].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. (U.S. Patent 6,696,504; issued February 24, 2004; filed December 23, 1999) in view of Lee et al. (U.S. Patent 6,759,446; issued July 6, 2004; filed May 2, 2002). Hayashi et al. teach a cell orientation between about 1.0 and about 1.5 and a foam density between about 20 and about 50 kg/m³. (col. 25-26 Table B1 and col. 4 lines 13-15). Hayashi et al. do not teach a cell size between about 60 and 120 μ m. Lee et al. do disclose foam with an average cell size greater than 15 μ m, which meets the limitations of a cell size between about 60 and 120 μ m. In the case where the claimed ranges

“overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F. 2d 1575 16 USPQ2d 1934 (Fed. Cir. 1990). Additionally, several figures in Lee et al. visually appear to meet the limitations of cell wall thickness and cell strut diameter (Figures 6-8 and 10-12, for example). Therefore it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to produce a foam with the properties of claim 15 using the combined teachings and disclosures of Hayashi et al. and Lee et al. The motivation to do so is provided by Lee et al. who teach that cell size can vary widely depending upon operating conditions (col. 3 lines 30).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (U.S. Patent 6,759,446; issued July 6, 2004; filed May 2, 2002). Lee et al. teach a method of manufacturing a rigid foam by incorporating nano-particles into a polymer melt, incorporating a blowing agent into the melt, extruding the polymer melt, and cooling the foamed product formed to form a foam product having an average cell size between about 60 and 120 μm (col. 12 lines 9-11). Specifically, Lee et al. teach a method of manufacturing a foam with an average cell size greater than 15 μm . In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F. 2d 1575 16 USPQ2d 1934 (Fed. Cir. 1990).

Conclusion

All claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Friday 7:00 - 5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on 571-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JW

Jeff Wollschlager
Examiner
Art Unit 1732

January 17, 2006


MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER